

A X I O M S.

A X. I.

THE Angles of Incidence, Reflexion, and Refraction, lye in one and the same Plane.

A X. II.

The Angle of Reflexion is equal to the Angle of Incidence.

A X. III.

If the refracted Ray be returned directly back to the Point of Incidence, it shall be refracted into the Line before described by the incident Ray.

A X. IV.

Refraction out of the rarer Medium into the denser, is made towards the Perpendicular; that is, so that the Angle of Refraction be less than the Angle of Incidence.

A X. V.

The Sine of Incidence, is either accurately or very nearly in a given Ratio to the Sine of Refraction.

Whence if that Proportion be known in any one Inclination of the incident Ray, 'tis known in all the Inclinations, and thereby the Refraction in all cases of Incidence on the same refracting Body may be determined. Thus if the Refraction be made out of Air into Water, the Sine of Incidence of the red Light is to the Sine of its Refraction as 4 to 3. If out of Air into Glass, the Sines are

as

as 17 to 11. In other Proportions need seldom be considered.

Suppose therefore stagnating Water, in which any Ray AC is reflected, this Ray shall go upon the Surface of the Water, and hence the Perpendicular to Q, and conclude Reflexion and the Plane of the Ray let fall therefore Incidence AD, produce AD to BCB. For this I Angle of Reflexion to the Angle and by the second Axiom fired, I produce as the Sine of Refraction as 3 to 4; and also with the Radius Parallel to the Perpendicular the circumference shall be the Line which fall perpendicular to be the Sine of Refraction being DH, and consequently AD as 3 to 4.